

Notice of Allowability

Application No.

09/980,534

Examiner

Abdelali Serrou

Applicant(s)

LAUBER ET AL.

Art Unit

2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
2. ☒ The allowed claim(s) is/are 1-13.
3. ☒ The drawings filed on 31 October 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 03/05/02 & 5/18/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Allowable Subject Matter

1. Claims 1-13 are allowable over the prior art of record. The following is an examiner's statement of reasons for allowance:

2. Independent claims 1, 10, 12, and 13 are allowable since the claims teach error concealment for a sub-band having at least two spectral coefficients of an audio signal frame by inverse transforming the spectral coefficients of the sub-band to obtain a temporal representation thereof; and performing a time-domain prediction to obtain an estimated temporal representation for sub-band in a later frame, where the respective sub-bands have the same frequency range; forward transforming the estimated temporal representation to obtain at least two estimated spectral coefficients for the sub-band of the later frame; determining whether a spectral coefficient of the sub-band of the later frame is erroneous; and, if there is an erroneous spectral coefficient, substituting an estimated spectral coefficient for the erroneous spectral coefficient of the later frame so as to conceal the erroneous spectral coefficient of the later frame.

The closest combination of art is by Makivirta et al. ("Error Performance and Error Concealment Strategies for MPEG Audio Coding", Australian Telecommunication Networks & Applications Conference, Melbourne, Australia, p. 505-510, December 5-7, 1994) and Jeon et al. (U.S 5,673,363 issued on Sep. 30, 1997 and EP 0 718 982).

Makivirta et al. teach error-concealment methods for sub-band spectral-coefficient data which involve muting, repetition, prediction, or interpolation of the data, but do not teach any error concealment techniques using intermediate transformations from the frequency to the time

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domain and then back again into the frequency domain, so they also do not teach prediction in the time domain.

Jeon et al. teach error concealment for sub-band spectral-coefficient data by using adjacent sub-band spectral coefficient data from the same frame or from previous frames. No intermediate transformations from the frequency to the time domain and then back again to the frequency domain are taught, and thus also no time domain prediction for error concealment.

Thus all sub-band spectral-coefficient error-concealment processing in the prior art is done entirely in the frequency domain.

3. Claims 2-9, and 11 are allowable, being dependent upon the aforementioned claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fielder (U.S 5, 752, 225) teaches a method for audio signal production, wherein an inverse digital filter bank transforms the transformed coefficients into a time domain block. Udaya Bhaskar et al. (U.S 6,418,408) teach a system that generates error concealment mechanism for the line spectral frequency based on replacing the erroneous parameters with repetition of the pitch value of the previous frame. Herre (U.S 5, 781, 888) teaches a method and an apparatus for coding an audio signal by decomposing the audio signal into a plurality of spectral component coefficients and performing a linear prediction in the frequency domain.

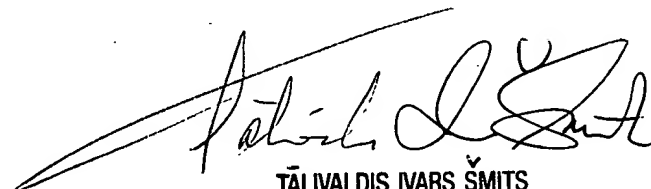
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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdelali Serrou whose telephone number is 571-272-7638. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on 571-272-7628. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Abdelali Serrou
08/08/2005



TĀLIVALDIS IVARS ŠMITS
PRIMARY EXAMINER